II. AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions/listings of claims.

1.   (Currently Amended) A method for building an automated datapath system generating tool for a datapath system including bit-sliced data between at least one source stage and at least one subsequent stage that are connected across a channel, the method comprising the steps of:

defining at least one system characteristic;

generating a core/pin rule for the design that defines each core of the design, each pin of each core and corresponding pin attributes, the core/pin rule including pin class rules;

~~establishing a set of primitive functions for use in constructing class-type inference rules;~~ and

constructing class-type inference rules based on the pin class rules for automatically generating the datapath system, each class-type inference rule executing at least one primitive function;

wherein the pin attributes include a class and a channel of the pin, and the core/pin rule generating includes bundling pins based on the class attributes and the channel attributes thereof, respectively, the bundling based on the class attributes being orthogonal to the bundling based on the channel attributes.

2.   (Original) The method of claim 1, wherein the defining step includes:

defining a set of cores to be used in the datapath system, and defining each stage of each core; and

establishing a link order name for each stage.

3.   (Original) The method of claim 2, wherein the defining step further includes identifying any global attributes for a plurality of pins.

4.   (Currently Amended) The method of claim 1, wherein the core/pin rule generating step includes:

bundling pins of each stage according to at least one class, each class indicating a common wiring parameter for the pins, ~~wherein the class is a pin attribute~~;

categorizing each class as one of a plurality of datapath system class-types;

bundling pins according to at least one channel identifier, ~~wherein the channel identifier is a pin attribute~~;

and

generating the core/pin rule that defines each core of the design, each pin of each core and corresponding pin attributes.

5.   (Original) The method of claim 4, further comprising the step of assigning a vector index to each pin within a multiple pin core having more than one pin with the same class and channel identifier, wherein the vector index is a pin attribute.

6.   (Original) The method of claim 4, further comprising the steps of bundling pins according to at least one global attribute, each global attribute indicating a common global parameter of the pins.

7.   (Cancelled).

8.   (Currently Amended) A system for building an automated datapath system generating tool for a datapath system including bit-sliced data between at least one source stage and at least one subsequent stage that are connected across a channel, the method comprising the steps of:

means for defining at least one system characteristic;

means for generating a core/pin rule for the design that defines each core of the design, each pin of each core and corresponding pin attributes, the core/pin rule including pin class rules;

~~means for establishing a set of primitive functions for use in constructing class-type inference rules;~~ and

means for constructing class-type inference rules based on the pin class rules for automatically generating the datapath system, each class-type inference rule executing at least one primitive function;

wherein the pin attributes include a class and a channel of the pin, and the core/pin rule generating includes bundling pins based on the class attributes and the channel attributes thereof, respectively, the bundling based on the class attributes being orthogonal to the bundling based on the channel attributes.

9.   (Original) The system of claim 8, wherein the defining means includes:

means for defining a set of cores to be used in the datapath system, and defining each stage of each core;

means for establishing a link order name; and

means for identifying any global attributes for a plurality of pins.

10.   (Currently Amended) The system of claim 8, wherein the core/pin rule generating means includes:

means for bundling pins of each stage according to at least one class, each class indicating a common wiring parameter for the pins, wherein the class is a pin attribute;

means for categorizing each class as one of a plurality of datapath system class-types;

means for bundling pins according to at least one channel identifier, wherein the channel identifier is a pin attribute; and

means for generating the core/pin rule that defines each core of the design, each pin of each core and corresponding pin attributes.

11.   (Original) The system of claim 10, further comprising means for assigning a vector index to each pin within a multiple pin core having more than one pin with the same class and channel identifier, wherein the vector index is a pin attribute.

12.   (Original) The system of claim 10, further comprising means for bundling pins according to at least one global attribute, each global attribute indicating a common global parameter of the pins.

13.   (Cancelled).

14.   (Currently Amended) A computer program product comprising a computer useable medium having computer readable program code embodied therein, which when executed,

causing a computer to build an automated datapath system generating tool for a datapath system including bit-sliced data between at least one source stage and at least one subsequent stage that are connected across a channel, the program product comprising program code, which when executed, configured to:

define at least one system characteristic;

generate a core/pin rule for the design that defines each core of the design, each pin of each core and corresponding pin attributes, the core/pin rule including pin class rules;

~~establish a set of primitives for use in constructing class-type inference rules;~~ and

construct class-type inference rules based on the pin class rules for automatically generating the datapath system, each class-type inference rule executing at least one primitive function<u>;</u>

<u>wherein the pin attributes include a class and a channel of the pin, and the core/pin rule generating includes bundling pins based on the class attributes and the channel attributes thereof, respectively, the bundling based on the class attributes being orthogonal to the bundling based on the channel attributes.</u>

15.   (Original) The program product of claim 14, wherein the defining code includes:

program code configured to define a set of cores to be used in the datapath system, and defining each stage of each core; and

program code configured to establish a link order name.

16.   (Original) The program product of claim 15, wherein the defining code further comprises program code configured to identify any global attributes for a plurality of pins.

17.   (Currently Amended) The program product of claim 14, wherein the core/pin rule generating code includes:

program code configured to bundle pins of each stage according to at least one class, each class indicating a common wiring parameter for the pins, wherein the class is a pin attribute;

program code configured to categorize each class as one of a plurality of datapath system class-types;

program code configured to bundle pins according to at least one channel identifier, wherein the channel identifier is a pin attribute; and

program code configured to generate the core/pin rule that defines each core of the design, each pin of each core and corresponding pin attributes.

18.   (Original) The program product of claim 17, further comprising program code configured to assign a vector index to each pin within a multiple pin core having more than one pin with the same class and channel identifier, wherein the vector index is a pin attribute..

19.   (Original) The program product of claim 17, further comprising program code configured to bundle pins according to at least one global attribute, each global attribute indicating a common global parameter of the pins.

20.   (Cancelled).

21.   (New) The method of claim 1, further comprising establishing a set of primitive functions for use in constructing the class-type inference rules.

22.   (New) The system of claim 8, further comprising means for establishing a set of primitive functions for use in constructing the class-type inference rules.

23.   (New) The program product of claim 14, further comprising program code configured to establish a set of primitives for use in constructing the class-type inference rules.